WW-16J

U.S. Army Corps of Engineers, Louisville District
ATTN: Mr. George DeLancey, CELRL-OP-FW
P.O. Box 489
Newburgh, Indiana 47629-2678

Re: Public Notice LRL-2008-1304-GJD

Dear Mr. DeLancey:

The U. S. Environmental Protection Agency has reviewed the above referenced Public Notice. The applicant, Solar Sources, Inc. (Solar), proposes to develop a surface and underground coal mining operation named the Charger Mine. The proposed mine is located along wetlands and streams associated with Flat, Prides, and Sugar Creek. It is located southeast of Petersbug in Pike County, Indiana.

The 404(b)(1) Guidelines (Guidelines) of the Clean Water Act (CWA) require that a sequence of planning steps be demonstrated that involves avoidance, minimization, and compensation for stream and wetland loss. In addition to reviewing the Public Notice, EPA evaluated these documents: 1) CWA 404 Application, 2) Preliminary JD Report, 3) Baseline Narrative, 4) Practicable Alternative Analyses, 5) Water Quality, 6) Geology, 7) Mitigation, 8) Stream Plan, 9) Wetland Plan, 10) Cumulative Impacts, and 11) Maps. We offer these comments as our evaluation of the project's adherence to these Guidelines:

1. Avoidance

The proposed mining operation is not a water-dependent activity; however, it is recognized that coal mining can only take place where the resource is located. Avoidance of all wetlands and streams may therefore not be possible if substantial water resources exist where the coal seams are located. Solar documents three different action alternatives in this analysis – including an examination of different locations, reduced project size, and alternative methods of mineral extraction. In general, it provides an adequate explanation of how they selected their preferred alternative.

2. Minimization

On the other hand, efforts at minimizing impacts to existing wetlands and streams for the preferred alternative are ambiguous or absent. Table 2 of the Mitigation document shows that 7.3 acres of wetlands and 4,602 linear feet of stream will be "avoided". It is possible these numbers could be listed under "minimization". In either case, there is still no explanation for how these resources will not be impacted or where they are located. Moreover, a discussion of

minimization of impacts needs to consider the placement, sizing, and configuration of surface support facilities, haul roads, and other features that are not in situ as the coal seams are. Such a discussion is missing from all the evaluated documents. Without it, EPA cannot determine whether minimization efforts took place at all, let alone decide if they are adequate to meet the Guidelines.

3. Compensation

The remainder of the comments will focus on this last aspect of the Guidelines. A review of the mitigation plan cannot begin until the assessment of impacts has been properly conducted.

3.1. Impacts to Wetlands and Streams

It is clear from the Public Notice and CWA 404 Application that the impacts to water resources due to this project will be substantial. In brief, proposed impacts include 1.4 acres of wetlands; 18,670 linear feet of intermittent stream; and 9,319 linear feet of ephemeral stream. In addition, Solar will be responsible for prior impacts to wetlands and streams conducted by the previous owners. These past impacts total 35,085 linear feet of stream and 7.0 acres of wetland. In total, 63,074 linear feet of stream and 8.4 acres of wetland will be filled for this project.

3.1.1. Inappropriate use of the Missouri Stream Mitigation Method

The Missouri Stream Mitigation Method (Missouri Method) is intended for use as a guide to help regulators and the regulated community determine the adverse impact of an action on streams and what amount of credits a proposed stream mitigation project would generate. There are two calculations that need to be done for the Missouri Method to succeed: an adverse impacts analysis and a mitigation credit analysis.

On the adverse impact side, there is an attempt to borrow one of the six adverse impact factors used to calculate required mitigation credits, called Existing Condition, for use in determining the functional status of each stream. The terms fully functional, moderately functional, and functionally impaired are used to describe aspects in the Stream Assessment Worksheet (Worksheet) such as: entrenchment ratio, stream type, bank erosion, channel stability, altered channel, and riparian zone. Then, a final channel functionality for the stream is somehow calculated from these ratings. Lastly, streams lengths are totaled based on their channel functionality ratings, and a mitigation ratio is applied based on these ratings – 1:3 for functionally impaired, 2:3 for moderately functional, and 1:1 for fully functional streams.

This is an inappropriate use of the Missouri Method for many reasons.

3.1.1.1. First, the existing condition is an overall observation of the physical, chemical, and biological health of the stream, not a rating for select morphological features of the stream.

3.1.1.2. Second, the rationale for determining the channel functionality of each stream in the Worksheet is not explained. The Missouri Method lists criteria that qualify streams for being functionally impaired, moderately functional, or fully functional. These criteria were not applied to the Worksheets, nor is there an

explanation of what criteria were actually used. Some Worksheets do not even have ratings for morphological features but have a channel functionality rating.

3.1.1.3. Five of the six other adverse impact factors were not properly used in calculating the amount of mitigation required (the other factors being Stream Type, Priority Area, Duration, Activity, and Linear Impact).

3.1.1.4. The mitigation ratios are completely made-up and not supported by any precedent, established guidelines, or science. The ratios also disregard the existence of the mitigation crediting analysis included in the Missouri Method.

It would be prudent for Solar to fully implement the Missouri Method for the adverse impact AND mitigation credit analysis or drop reference to the Missouri Method entirely. Should the latter route be taken, a defendable and logical impact analysis and mitigation crediting method must be developed, reviewed, and approved by the resource agencies before the permit is issued.

3.1.2. Misrepresentation of past impacts

The Baseline Narrative document incorrectly states that "All streams referenced in this application have been assessed in the field utilizing accepted methodology based on sound fluvial geomorphic principles to determine flow regime and to characterize stream patterns, profiles and dimensions." It should be noted that the past stream impacts were not assessed in the field and cannot be assigned an existing condition according to the Missouri Method since the impact analysis was based on remote sensing data, not onsite field visits. This statement should be corrected. Also, since those past stream impacts could not be assessed in the field, it is therefore unclear how the totals were obtained in Table 3A of the Mitigation document. Table 3A states that of the 63,074 linear feet of stream impacts, 3,647 feet are to fully functional streams, 13,482 feet are to moderately functional streams, and 45,945 feet are to functionally impaired streams. If only the 32,591 linear feet of existing streams were assessed in the field using Worksheets, how was the balance of past impacts assessed existing conditions?

3.2. Mitigation Plan

The proposed mitigation for this project includes the creation of 38,000 linear feet of fully functional stream and 10.0 acres of wetland. The wetland mitigation ratios in Table 3 of the Mitigation document are standard ratios applied to impacts in southern Indiana, and are therefore acceptable. As previously stated, the stream mitigation ratios in Table 3A are not acceptable to EPA. In all likelihood, proposed mitigation for streams will require greater stream length and improvements to the mitigation plan. The following comments address some of the shortcomings found in the plan and include suggested changes.

3.2.1. Stream Mitigation

Solar proposes to create 38,000 linear feet of fully functional intermittent stream channels as compensation for the 63,074 linear feet of stream that will be filled. EPA disagrees with Solar's assertion that this amount of mitigation will more than offset the impacts of the project, due in large part to the misuse of the Missouri Method and the misrepresentation of past stream impacts noted earlier. In addition, the lack of ephemeral or headwater stream length in the mitigation plan is a concern. Headwater streams play a

vital role in the water quality, water quantity, ecology, biological integrity, and biodiversity of downstream waters. The current stream mitigation plan would not replace the lost functions of that these headwater streams provide, and as a result, downstream waters would be negatively impacted.

3.2.2. Monitoring

General monitoring of wetland and stream mitigation areas are proposed for 5 years or until success criteria are met. EPA recommends a monitoring period of 10 years or more. This recommendation is based on several considerations:

3.2.2.1. Forested wetland vegetation and riparian buffers require a longer time period to become established and potentially successful than herbaceous vegetation.

3.2.2.2. Stream creation is still an unproven science even in undisturbed areas. Stream creation on recreated soils and substrates during mine reclamation adds greater challenges to the process. More time is necessary to evaluate the mitigation's success and make changes if necessary.

3.2.2.3. The effects of settling and subsidence in the mitigation areas are unknown, especially since some of the mining will be underground. The hydrology of the mitigation areas could be significantly altered by these processes, but not be effectively studied or addressed during a 5 year monitoring period.

In addition to monitoring mitigation streams for the reclamation process, monitoring needs to occur on upstream and downstream rivers surrounding the site before, during, and after the active mining phases. This is necessary to ensure that impacts to water quality are controlled and within tolerance limits. In addition, one aspect of monitoring that is completely absent from the mitigation plan is biological monitoring. Biological monitoring must be conducted prior to the initiation of mining to establish baseline conditions, during the mining activities (where possible) to assist in determining potential impacts to aquatic flora and fauna, and must continue for 10 years after the mitigation activities to determine the success of the mitigation.

3.2.3. Wetland Success Criteria

3.2.3.1. Should Solar use monitoring well data to meet wetland hydrology success criteria, the previous monitoring standard of inundation or saturation for at least 5% of the growing season is no longer used under the Midwest Supplement to the 87 Wetland Delineation Manual. The Corps of Engineers Technical Standard for Hydrology (2005) now requires, "14 or more consecutive days of flooding or ponding, or a water table 12 in. (30 cm) or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10 (50 percent or higher probability) unless an alternative standard has been established for a particular region or wetland type."

3.2.3.2. The success criteria for Bottomland Hardwood vegetation are inadequate. The initial planting rates for RPM or Bare Root Seedlings are satisfactory, as are the proposed survival rates of 90% and 80%, respectively. However, the survival rates need to be met over a longer monitoring period (10 years or more) and at shorter intervals, or replanting must occur. Suggested intervals are at the 2nd, 5th, 7th, and 10th year of monitoring. This recommendation is based on the previously stated

requirement for longer monitoring periods and also to ensure that any tree mortality below the survival rate is corrected sooner rather than later.

3.2.3.3. Hydric soils criteria have changed with implementation of the Midwest Supplement to the 87 Wetland Delineation Manual. Field Indicators of Hydric Soils in the United States, published by the National Technical Committee for Hydric Soils, is now the standard in lieu of low chroma colors.

3.2.4. Contingency Plan

A contingency plan or remedial action plan needs to be developed that outlines potential problems that may be encountered during mitigation activities and proposed solutions. In addition, procedures must be established for identifying, reporting, and implementing remedial actions according to specific timelines, in the event they are necessary. The general discussion about contingency in the Mitigation document assumes that problems will not arise or that they will be handled as they come up. A greater level of pre-planning is needed to instill confidence that any remedial actions will be conducted appropriately and in a timely manner.

3.2.5. Long-term Ownership and Management

All wetlands, streams, and riparian buffers created for mitigation purposes must have a permanent deed restriction or conservation easement placed on them before any mitigation credit is granted for them. The section on Long-term Ownership and Management in the Mitigation document is not clear about this requirement. In addition, the language in this section references a term called "mitigation release". It should be made clear in the application that no lands used for mitigation will ever be released from use as mitigation. They may be released from monitoring requirements after the specified period is over. Nor will there be any reduction in mitigation ratios as the result of attaching deed restrictions, management leases, or conservation easements to mitigation areas. Finally, all lands used for mitigation purposes are not eligible to receive any benefits from USDA programs.

3.2.6. Financial Assurances

Significant financial assurances will be required due to the experimental nature of wetland and stream creation on previously mined lands. Financial assurances must be established before the 404 permit is issued and include specific details on the dollar amount, type(s) of assurance, release conditions, and be made payable to a designee of the Corps or a standby trust agreement. Estimates of the construction, monitoring, and maintenance costs of mitigation activities will be necessary too. Without these details, we cannot evaluate whether the financial assurances are adequate to cover mitigation failures. EPA would like to see these details regarding the financial assurances obtained by Solar prior to permit approval.

4. Cumulative Impacts and Scope Analysis

This document provides a good review of former and existing land uses, as well as pollutant sources, within the watersheds where the project is located. However, it fails to provide a cumulative impact analysis, which is a study of the effects of this mining project and others like it on the overall health of the watersheds. There are some minor references to past

mining in Pike County over three decades ago, but overall it fails to provide basic details such as the number of mining operations in the watersheds (recent past and present), the surface and subsurface disturbance of these mines, the acres of lost wetlands and linear feet of streams, and the combined environmental effect these mines have had on the watersheds.

Conclusion

EPA finds that this project does not demonstrate avoidance, minimization, and compensation for stream and wetland losses in accordance with the 404(b)(1) Guidelines. We therefore object to issuance of the permit as proposed in the Public Notice and permit application materials. There are significant deficiencies that need to be addressed, especially with regard to impacts to waters of the U.S. and compensation for those impacts. Please notify us about Solar's response to these comments and any changes to the permit application. Thank you for the opportunity to provide comments on this project. If you have any questions, or if we can be of further assistance, please contact Yone Yu at 312-886-2260.

Sincerely,

Dean Maraldo, Acting Chief
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